Ch 6 Review   Name ___KEY_____
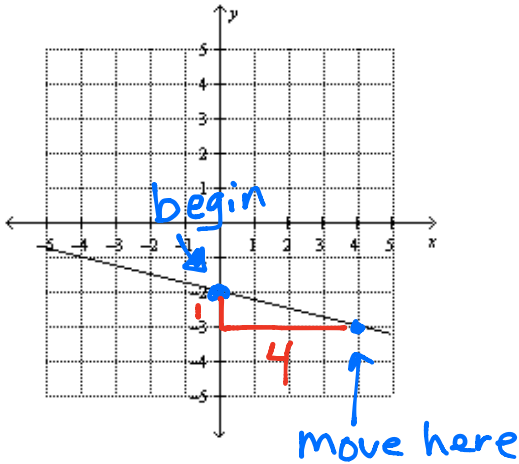Graphing Linear Functions   Block ____

1. Use the graph to answer the following questions:

1. Identify the y-intercept: $(0, -2)$
   "b"

2. Identify the slope: $-\dfrac{1}{4}$ Rise / Run

"m"   negative slope

begin   move here

2. You have $10 in your savings account. Each week you add $15 to savings for a new phone. Draw a graph showing the amount of money that's in savings over several weeks.

$ | 55 50 45 40 35 36 25 20 15 10 5

1 2 3 4 5 6
Time (weeks)
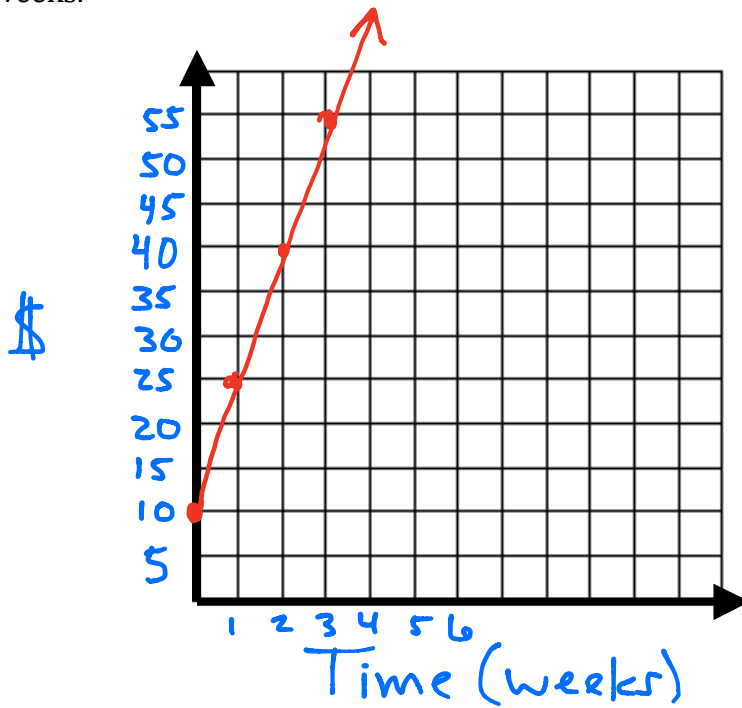
3. You have $100 saved. Each week you spend $20. Draw a graph showing the amount of money you have over several weeks.

$200
180
160
140
$ 120
100
80
60
40
20

1 2 3 4 5 6
Time (Weeks)
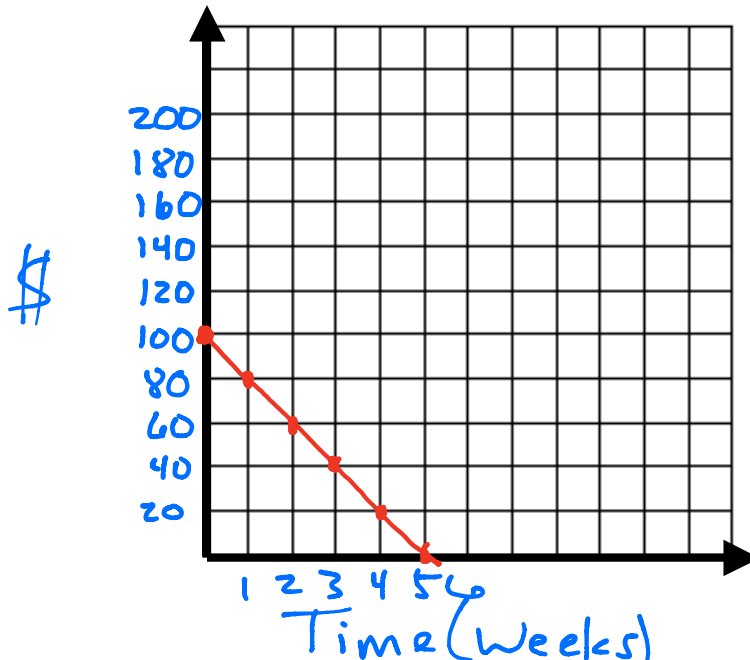
4. Find the y-intercept of the equation 5x - 7y = -70.

$(0, \quad)$
x y

Substitute
"0" in for x.
Keep the y.

↑
0

$(0, 10)$

$5(0) - 7y = -70$

$\dfrac{-7y}{-7} = \dfrac{-70}{-7}$

$\boxed{y = 10}$

5. Find the x-intercept of the equation -8x + 6y = 24.

Keep the x,
Sub. "0" in for y.

↑
0

$(-3, 0)$

$-8x + 6(0) = 24$

$\dfrac{-8x}{-8} = \dfrac{24}{-8}$

$\boxed{x = -3}$

6. Graph the linear equation. Write down the information used to graph.

$y = -\dfrac{5}{3}x + 4$

$y = mx + b$

Slope-Intercept Form

$M = -\dfrac{5}{3}$

$b = 4$

y-int.
begin

Rise down 5
Run right 3
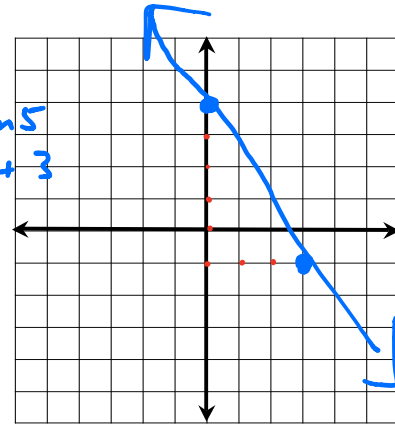
7. Graph the linear equation. Write down the information used to graph.

$y - 2 = \dfrac{3}{4}(x + 1)$

$y - y_1 = m(x - x_1)$

Point-Slope Form

$m = \dfrac{3}{4}$

point: $(-1, 2)$
         x   y
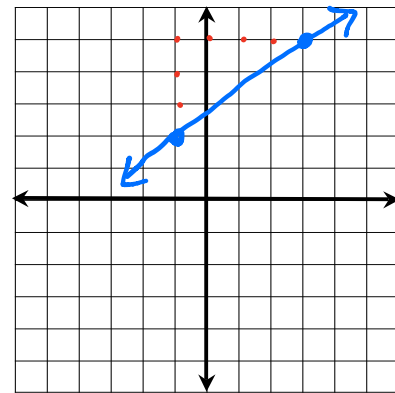
8. Graph the linear equation. Write down the information used to graph.

$9x - 12y = 36$

$Ax + By = C$

Standard Form
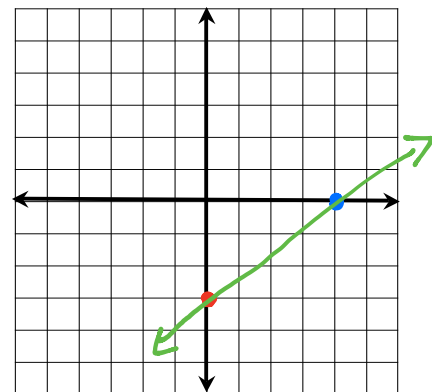
x-int: $(\quad, 0)$

$9x - 12(0) = 36$
$9x = 36$
$\boxed{x = 4}$

y-int: $(0, \quad)$

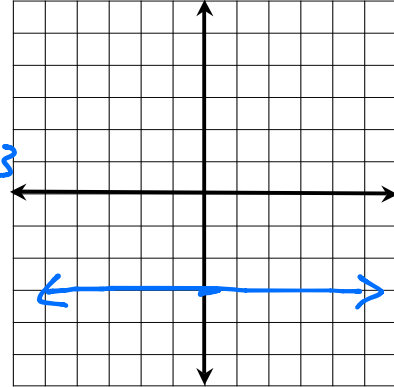$9(0) - 12y = 36$
$-12y = 36$
$\boxed{y = -3}$

9. Graph the linear equation. Write down the information used to graph.

$y = -3$

Line must cross the y-axis at -3

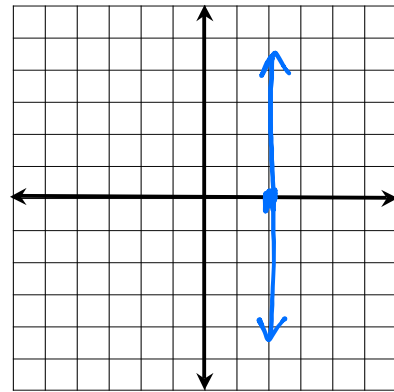| x	y
0	-3
1	-3
2	-3

Any #'s

10. Graph the linear equation. Write down the information used to graph.

$x = 2$

Line must cross the x-axis at 2.

x	y
2	0
2	1
2	2

Any #'s

11.
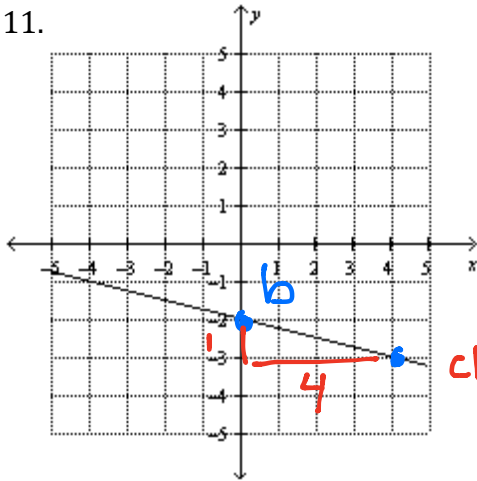
a. Write the equation of the line in slope-intercept form. $y = mx + b$

$m = -\frac{1}{4}$

$b = -2$

$$y = -\frac{1}{4}x - 2$$

b. Rewrite the equation in standard form using integers. $4 \cdot (y) = 4 \cdot \left(-\frac{1}{4}x\right) - 4(2)$

Clear out the fraction

$4y = -1x - 8$

$+x \qquad\qquad +x$

$$x + 4y = -8$$

12. A line passes through two points (7, 2) and (5, -6).
Write an equation for the line in **point-slope form.** Then rewrite the equation in **slope-intercept** form.

$m = \frac{y_2 - y_1}{x_2 - x_1} = \frac{-6 - 2}{5 - 7} = \frac{-8}{-2} = \boxed{4}$

Pick a point: $(7, 2)$
$\quad\quad\quad\quad\quad\quad\quad x \quad y$

$y - 2 = 4(x - 7)$

$y - 2 = 4x - 28$

$\quad +2 \qquad\quad +2$

$$\boxed{y = 4x - 26}$$

Point-Slope Form: $y - 2 = 4(x - 7)$

$y - y_1 = m(x - x_1)$

Slope-Intercept Form: $y = 4x - 26$

13. A line passes through two points (-4,-3) and (-2,1).
Write an equation for the line in **point-slope form.** Then rewrite the equation in
slope-intercept form.

Pick: $(-2, 1)$
     $x \quad y$

$$m = \frac{y_2 - y_1}{x_2 - x_1} = \frac{1 - {}^-3}{-2 - {}^-4} = \frac{4}{2} = \boxed{2}$$

$$y - 1 = 2(x + 2)$$
$$y - 1 = 2x + 4$$
$$\underline{\quad +1 \qquad +1\quad}$$
$$\boxed{y = 2x + 5}$$

Point-Slope Form: $\underline{y - 1 = 2(x + 2)}$

Slope-Intercept Form: $\underline{y = 2x + 5}$

14. Rewrite the equation $4x + 5y = 40$ in slope-intercept form.

$$\underline{-4x \qquad -4x} \quad y = mx + b \qquad \text{Solve for } y.$$

$$\frac{5y}{5} = \frac{-4x}{5} + \frac{40}{5}$$

$$\boxed{y = -\frac{4}{5}x + 8}$$

15. Rewrite the equation $3x - 6y = 12$ in slope-intercept form.

$$\underline{-3x \qquad -3x} \quad y = mx + b$$

$$\frac{-6y}{-6} = \frac{-3x}{-6} + \frac{12}{-6}$$

$$\boxed{y = \frac{1}{2}x - 2}$$

16. Rewrite the equation $y = -\frac{4}{3}x + 7$ in standard form using integers.

$3 \cdot y = 3 \cdot \left(-\frac{4}{3}\right)x + 3 \cdot (7)$

$Ax + By = C$

$3y = -4x + 21$

$+4x \qquad\qquad +4x$

$$\boxed{4x + 3y = 21}$$

17. Katie opens a savings account with $200 and deposits $55 each month thereafter. Write a linear function that models monthly balance.

$m = 55$
$b = 200$

$$y = 55x + 200$$

18. Josh has $200 and spends $5 every week on snacks. Write a linear function that models the amount of money he has.

$m = {}^-5$
$b = 200$

$$y = {}^-5x + 200$$

19. The theater charges $3 per child and $5 per adult for each show. Write an equation in standard form relating the amount of children and adults that can go to the theater if you spend $80.

$C \qquad A$

$$3C + 5A = 80$$

20. The food truck charges $2 for each taco and $3 for each burrito. Write an equation in standard form relating the number of tacos and burritos you can buy if you spend $45.

$$2T + 3B = 45$$